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ADVERTISING REPRESENTATIVE:

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20 Queen St., Melbourne, C.1.
Telephone: MU 5154.

PRINTERS:

"RICHMOND CHRONICLE,"
Shakespeare St., Richmond, E.1.
Telephone: JB 2419.

MSS. and Magazine Correspondence should be forwarded to the Editor, "Amateur Radio," Law Court Chambers, 191 Queen St., Melbourne, C.1., on or before the 8th of each month.

Subscription rate in Australia is 9/- per annum, in advance (post paid) and A10/6 in all other countries.

Wireless Institute of Australia (Victorian Division) Rooms' Telephone is FJ 6997.

AMATEUR RADIO

Published by the Wireless Institute of Australia,
Law Court Chambers, 191 Queen Street,
Melbourne, C.1.

EDITORIAL



TOO YOUNG AT SIXTEEN?

Ever since the re-allocation of Amateur Station Licenses in the post war era the Institute has been asked "Why cannot a person be licensed to operate an Amateur Station at the age of sixteen years?"

This is a serious subject and one that has two "schools" of thought—the old and the new. By the old is meant people of so called "mature age and judgment," and the new, people mature in age but whose tenure could be said to be considerably less than their more aged brothers insofar as experience in the affairs of the world is concerned.

In deliberating on a decision of this nature one must have due regard to these two groups of people, because in a progressive and scientific world such as the past two generations have been born into, it is imperative that the newer group has a say, tempered if necessary by the more experienced voice of the older group.

Everywhere in the world today young people still at school take a keen interest and active parts in the affairs of all kinds of clubs and institutions, and they are encouraged to do so; they have advanced by some years their activities, compared to their forbears at the same age.

And why? Because educational and living standards have changed with the passing years. With the advent of the electronic and electro-mechanical age, school curriculums cover a wider sphere of learning, there are more basic principles to learn, the older ones must sometimes be modified to fit men for modern learning—all in all, the modern scholar must be more knowledgeable—and in fact more so—than the scholar of two decades ago. One has only to heed the oft spoken words, "I don't know what he is talking about, I never learned that at school in my day"—or even just listen to the modern scholars talking among themselves.

By and large, the older group—composing the parents of today—

countenance all sorts of activities by their offspring—club activities, photography, chemistry, dancing, in fact anything that assists their educational advancement and at the same time serves as a relaxation from their normal school study periods.

And yet, without any authenticity, you will hear the older group—and to be fair, the newer group, too, sometimes—say that scholars in their early teens should not take up radio as a hobby, particularly to become an Amateur Operator, because such an activity interferes with their studies! "To grant an Amateur License at the age of sixteen," they say, "is too young because studies continue even after completing the normal school terms up to intermediate and leaving standards."

This thinking is utterly wrong and baseless in fact!

The study of radio takes in basic theory of electricity and magnetism and mathematics almost entirely in one form or another, and, having gained a license, a scholar operating a station on the air gains stupendous insight into the subjects in an advanced form with the added phase of geographical learning thrown in for good measure.

The solution of the problem is simple enough. If a scholar has the knowledge and temerity to pass an A.O.C.P. examination at the age of sixteen he should be granted a license.

The key to the problem of interference to studies is one of parental control—nothing else—and should be subjugated to the right perspective. Parents should not permit their son or daughter to "play" radio at the expense of studies any more than they are prepared to permit them to attend clubs, go dancing, or "play" at any other hobby. But relaxation one night per week, at least, is the forerunner of a sound, logical, healthy and contented mind.

Grant an Amateur License at the age of sixteen! Why not?

FEDERAL EXECUTIVE.

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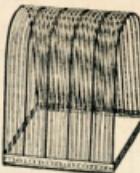
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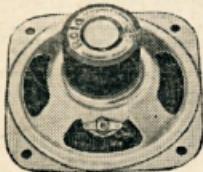
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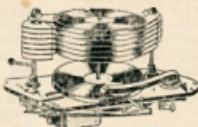
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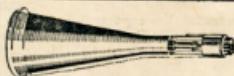
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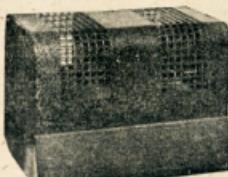
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Some Pointers on Good Quality Phone

BY R. DOWLING,* VK3XD

Herewith are a few hints for phone transmission if you want a pat on the back for good quality signals.

All power supplies to be well filtered, plenty of buffering with amplifiers, Class C or Class B, doublers; no regeneration of any stage in itself or to other stages; decouple the stages in your power supplies by good chokes and condensers.

The buffering with amplifiers prevents frequency modulation of the carrier, and/or carrier shift. (These between oscillator and final stage.) In other words the carrier beat note should never change, as observed on a receiver, with the b.f.o. in operation.

The Class C buffers should be perfectly neutralised (not doublers). The final modulated amplifier should be capable of perfect neutralisation. Feedback in the final amplifier will be reflected in non-linear modulation (almost like single side-band). This will cause audio amplitude distortion of the signal.

The Class C final, if modulated, should be biased to about 2.2 times cut-off and should have about 25% more grid excitation than for c.w. operation. Lack of drive (also some in reserve) will also cause non-linear modulation. (One side of carrier modulated more than other, or modulated non-symmetrically.)

The tubes used in the final Class C modulated amplifier must have a reserve of filament emission, sufficient to allow the peak plate current to double during 100% modulation. This, if not done, will also cause non-linear modulation. (Don't over-couple your antenna with low plate voltage to get more output, or don't worship the amplifier's milliamperes, if you do, you will kill the tubes.)

The modulators, if Class B, should be assisted by a swinging choke in the power supply filter. This means that with variation of plate current on the tubes, between standing current and maximum audio drive, the more the plate current. The filter should work to cope with varying loads for good voltage regulation which means that a swinging choke is a component which varies in its inductance according to the varying currents passing through the windings, viz., the choke on light current loads, no modulation (choke input filter), and when the load is heavy (modulating, more plate current rise) (condenser input). This choke then needs an assistant, a 30 ohm choke, and large capacity filter, 8 uF, or more on the output of the supply to bring about good decoupling and preserving audio response.

Good shielding or isolation of the r.f. portion from speech equipment. No r.f. to get into speech equipment whatsoever. If it does, it cancels out the audio causing overloading, blocking, whistling or singing, and instability of audio.

Completely shielding the speech amplifier is preferable to shielding the r.f. section of the transmitter. This is hard to believe, but personal experience has

shown to me that unwanted coupling and r.f. to audio equipment increase directly with the frequency used. When operating on 20 metres, the transmitter, for a given degree of operation with good isolation resulting in good signals or trouble-free ones, will be almost useless on 10 metres due to feedback troubles.

Suggest getting the rig going on 10 metres first for 10, 20 and 40 metre operation if good signals are wanted on 10 metres. The feedback from a 20 metre transmitter for a given degree of isolation (mediocre) is eight to 10 times as evident as in a similar transmitter operating on 120 metres, and eight times as much shielding and trouble-precautions are necessary to isolate audio from r.f. troubles.

[A separate power supply for the speech amplifier and decoupling through a 600 ohm line to the drivers for the modulators pays dividends in this respect.—Tech. Ed.]

R.F. goes everywhere, regardless of paths of low or high resistance, not

necessarily the shortest path to audio circuits. R.F. in low level audio circuits causes all kinds of troubles.

As you know, the actual process of modulation is the mixing (superimposing) of audio and radio frequency (carrier) or superimposing audio (a.c. on d.c. (r.f. carrier); a complex business. In your case, this all occurs in the plate circuit of the Class C r.f. stage. The term "plate modulation" is not strictly accurate, but power modulation is more descriptive of what goes on.

Now this final stage. It is possible that your carrier, with no modulators connected, could be putting out a distorted wave form due to wrong Q of the final tank circuit. To correct this, you must have the stage operating to give you more output with coinciding minimum plate current, and until you get this condition in the final, you cannot load properly with the antenna to maintain that large reserve (flywheel effect) necessary to produce a signal with effective modulation, whereby the tube filament emission has sufficient reserve to permit the plate current to double during 100% modulation. If this is wrong, we then come back to non-linear modulation, splatter, distortion. "So do ye ken?"

Simple Conversion of AR301 to 144 Mc.

BY D. C. HABERECHT,† VK2RS

Before detailing the necessary minor alterations, a few words regarding the original receiver will not go astray.

The AR301 formed part of airborne equipment, A.S.V. type, operating on frequencies between 170 to 178 Mc. The design includes four i.f. stages at 30 Mc., using 6AC7 valves, the r.f. end comprising of two 954s as r.f. amplifiers, and two 955s as mixer and oscillator.

These receivers can be obtained through disposal stores at a reasonable cost and lend themselves particularly well to conversion to 144 Mc. The whole conversion should not take much more than an hour to complete.

ALTERATIONS TO WIRING

Firstly remove the original power supply wiring and if you so desire, remove the power transformer and choke, thus leaving ample space for a self-contained power supply. Then check over filament and h.t. wiring for breakages or corrosion, etc.

From the junction of resistors marked R16, R21, etc., located on the terminal strips connecting the 6AC7 i.f. stages, wire in a 5,000 ohm wire wound potentiometer. This control conveniently serves as an i.f. gain control, as this receiver is not equipped with a.v.c. This will prove useful in controlling some of the stronger signals.

The only other stage requiring alteration is the last 6AC7 stage following the 6H6 detector stage. This 6AC7 was originally wired as a cathode follower and can be quite simply converted to an audio voltage amplifier. To do this, simply remove the cathode resistors and replace with a 5,000 ohm resistor, by-passed with a 25 uF condenser. Then from the plate of this valve, remove

the 500 ohm resistor and replace with a quarter meg. resistor; then connect to this plate a 0.1 uF condenser to a half meg. volume control, taking care to shield the leads to this control. The return lead from the control is then brought back to the grid of the spare socket immediately adjoining the last 6AC7 stage. This socket is then wired in the conventional manner as an audio power amplifier using any available output valve.

The only other alteration necessary is to remove the co-axial lead from the switching motor and plug it into one of the spare co-axial plugs on the front panel.

FREQUENCY COVERAGE

If you are lucky enough to have access to a grid dip meter, little difficulty should be experienced in re-setting the stages to cover the 2 metre band. Should a grid dip meter not be available, a simple absorption meter will do the job equally as well, but will be more painstaking.

In order to get the oscillator stage tracking over the range from 114 Mc. to 118 Mc., a small air trimmer is wired directly across the oscillator coil. Then adjust this stage in steps, keeping the aerial and r.f. circuits peaked, until a noticeable drop in noise level occurs when you inductively couple the wavemeter to the second r.f. stage or mixer, making sure to use as little coupling as possible in giving you sufficient indication.

A final check on alignment can be obtained either from a signal or from car ignition noise.

This receiver, with these alterations, should prove a very successful and worthwhile inclusion in any v.h.f. man's shack, and most certainly offers a good and inexpensive means of covering the 2 metre band.

† Room 17, Central Chamber, Kiewa Street, Albury.

* 6 May Street, North Fitzroy, N.7, Vic.

TELEVISION MADE EASY

Part ix.—Outline of Color Television

BY KEN WALL† AND

JOHN JARMAN,* VK3ADA

So we have learnt how a television set works and why it sometimes does not, but what is this color television we hear so much about? Indeed, this subject has received so much publicity in the past two years, that this series would be incomplete without mention of it. Let us therefore, from the start, ignore the color television system as it has been perfected. In other words, color television is still in its experimental stages, and in this concluding article we will discuss the main trends of overseas experiments.

How ever, we wondered how colors could possibly be transmitted by radio? Well, strictly speaking, they are not! In every color system the picture is transmitted just as if it were in plain black and white, the color being applied to the scene after reception. The "mechanism" of color television can be summed up as a means of ensuring that this artificial coloring is performing correctly. Its operation depends on two elementary principles, viz.:

1. Light of any color can be reproduced by the combination of three primary colors—red, green and blue.

2. Conversely, the light reflected by any object can be "split-up" into these primary colors, in different proportion for every reflected color. Study these carefully, before reading any further.

Now white, for example, is composed of the whole three; yellow is a combination of red and green, and black is the absence of the whole three. Conversely, the three primaries can be separated. For instance, a red filter allows red light to shine through it, but "blocks" all other colors, and if placed over the lens of a camera, will allow the latter to photograph only the object which is red, and the primary, red. Likewise, blue and green filters "pass" only blue and green light, respectively, and when a scene is to be televised in color, here is briefly what happens.

Firstly, the red components are extracted by a red filter, transmitted as one group, and after reception, tinted red. Likewise, all the blue components are extracted from the same scene, by a blue filter, transmitted as one separate group, and tinted blue after reception. The green components are treated in the same way.

In the receiver, we therefore have three incomplete pictures, each of a uniform color. These components are re-projected to form a picture in full color. At once we see that an essential feature of color television is the transmission of three separate sets of detail (which, for convenience, we will call "images"), instead of one. The problem confronting scientists is how to do this without increasing the bandwidth, or sacrificing picture quality. Remember, too, that color is not applied until after reception. Each image is transmitted in black and white, or "monochrome" as it is termed.

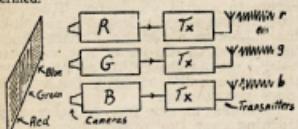


Fig. 1.—Transmitting Set-up.

To illustrate the principles of coloring, we will first consider a purely imaginary set-up. Fig. 1 shows three television cameras, each viewing the same object, which is a rectangular board painted with the colors, blue, green, red and black. Camera R is fitted with a red filter, so it receives only red light. Similarly, cameras G and B are fitted with green and blue filters, and receive only green and blue light, respectively. The images formed in the three cameras will therefore be as shown in Fig. 2.



Fig. 2.—Images Transmitted.

Now suppose each camera be connected to a separate transmitter on a different frequency. Our picture will therefore be transmitted as three separate signals—*r*, *g*, and *b*.

For reception, we will use three television receivers, tuned respectively to the three frequencies, as in Fig. 3. Each receiver will reproduce the image, shown in Fig. 2. Likewise *G* and *B* will reproduce the images in Fig. 2c and 2b respectively. But each of these images is in monochrome! Let's look them over.

Over the face of each of the three ray tube *R*, we place a red glass, and likewise we will fit green and blue glasses on tubes *G* and *B* respectively. We now have three colored images. All that remains to be done is to combine them.

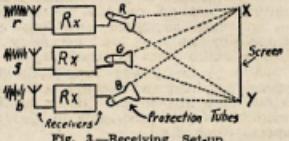


Fig. 3.—Receiving Set-up.

Now there is a type of cathode ray tube available whose face glows with such high brilliance that if fitted with an optical lens, it will project its image on a distant screen, just like a magic lantern. Let us fit this type of tube, with lens, in each receiver so that each image is projected (through colored glass) on to the screen *X*. The three colored images will now combine, to reproduce the original picture in full color.

As a further illustration, suppose the televised object was yellow all over. The images transmitted would now be as shown in Fig. 4.

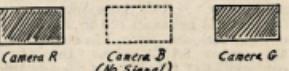


Fig. 4.—Images Transmitted for Yellow Object.

In place of the colored glasses, we can use tubes with colored phosphor coatings, thus producing the required colored light beams. Now for perfect color reproduction (or "color fidelity"),

Color applied to each received image must be identical with that "accepted" by the corresponding filter on the camera.

2. The brilliance, for a given signal strength must be the same in each receiver tube, otherwise colors will not be correctly balanced.

3. The three images projected on the screen must coincide perfectly with each other. This is called correct "registration" of color.

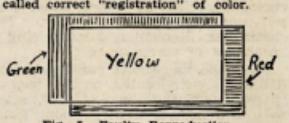
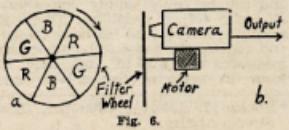


Fig. 5.—Faulty Reproduction.

Fig. 5 shows an example of faulty color registration, where our yellow object appears as two; one in red, the other in green. In the preceding illustration, each image was transmitted continuously. In other words, the whole three were transmitted simultaneously, so that this is a "simultaneous" system, requiring three times the bandwidth of a monochrome signal. Such systems (with modification) have been tried, but rejected.



b.

An alternative method, requiring only normal channel width, is to transmit the images alternately, in quick succession. Take a look at Fig. 6. Using only one camera, suppose we mount our color filters in a wheel (*a*) and set it revolving at a rate of 30 frames per second. If synchronised so that each field is scanned through the first field, for example, a red filter is in front of the lens, so that only the red component of the image is "seen" by the camera. During the next field, however, a green filter segment is in front of the lens, so that only green components are transmitted, and likewise, every third field contains only the blue component. The three colors are therefore transmitted in sequence so that this is called a "field-sequential system."

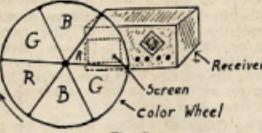


Fig. 7.

Now look at Fig. 7. In front of the receiver screen (which is one single c.r.t.) a color wheel revolves, similar to our aforementioned filters. The wheel is mounted so that while a red filter is in front of the camera lens, a red glass covers the receiver screen so that all the red components, having been "sorted out" by the filter, are not blemished in the received picture. Likewise, the green and blue components are reproduced in their respective colors and the three colored images are repeatedly flashed before the observer in such quick succession that they appear to be reproducing the original picture in full color.

In other words, our old friend "persistence of vision" is being further exploited, but wait! This is similar to the "color wheel" and our object (Fig. 4) received as two images, red and green. These will appear to blend, only if both occupy the same position, on the retina of the eye. Now, if the eyes are moved, this will not be the case, so the object will appear in red and green, as shown in Fig. 5. This is called "color break-up." Movement of the object gives the same effect, but in this case, it is called "color fringing." Take also the case of large areas of blue, such as a blue sky, or green grass. Since each primary color is scanned only once in three fields, it will appear on the screen only 30/3 equals 10 (approximately) times per second, and it never flickers. Use of these fields will however overcome by stepping up the field frequency, and an American Company, using this system, achieved an acceptable result, by increasing it from 30 to 144 fields/sec. To maintain the original bandwidth, however, the number of lines per frame had to be reduced from 525 to 405!

We see, therefore, that in a sequential system each primary, instead of being transmitted continuously, is "sampled" rapidly. For convenience, we may crudely say that our transmission keeps "changing color." In the field sequential system just described, it changes after every third field, so is another system, in which it changes after every line.

In the camera, a special optical system focuses the three images on to the one target, side by side. As the scanning beam travels across it scans one line in each field. The beam is also descending vertically, however, it will scan the next alternate line of each image. For example, it will scan line 1 of the blue, and line 2 of the red.

The receiver uses a special tube, whose face has three phosphor coatings, side by side, corresponding, of course to the three images on camera target, and each glowing in a different color. A special optical system "combines" these three coatings, so that to an observer, they appear to coincide, forming one frame, in which the lines are reproduced in the order green-blue-green-blue-green-blue, etc. This is also the "line sequential" system and since it uses the same line and field frequencies as the standard monochrome system, its pictures can be received in black and white on existing receivers, and the system is therefore classed as a "compatible" system.

It has, however, some grave disadvantages. Any line of a pure primary color is scanned only once in six fields, and as a field/sec. system (as in a monochrome) it appears only ten times per second, causing "inter line flicker," and apparent vertical movement of the horizontal lines, called "line crawl."

Before dealing with the next color system, let us review a little elementary theory. In

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article 3 we briefly mentioned the "picture element," which is defined as the shortest distance along a scanning line, in which the shade can change from white to black. Each line of a television picture is therefore composed of a series of picture elements, which consist of the particles in a photographic film, and the dots, which constitute a printed photo (in a newspaper, etc.). For convenience, we will call these elements "dots."

Now, examine a newspaper photo carefully and note that at normal viewing distance, the individual dots cannot be distinguished. They appear to merge into areas of uniform shade. Now, if these dots were of different colors, the viewer would see the colors combined in one picture. So far we have tried changing the color after every field, and after every line. Having seen how this can be done in the receiver, let us now try changing the color after every dot!

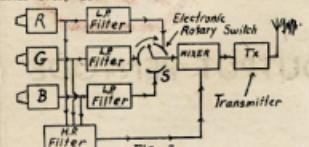


Fig. 8.

Consider the three cameras in Fig. 1. Instead of connecting each one to a separate transmitter, we connect them alternately to the one transmitter, as in Fig. 8, by the rotary switch, so that at any instant, only one camera is on the air. Momentarily ignoring the filter circuits, suppose *S* is an electronic switch, operating at a frequency high enough, so that each camera is on the air only for the duration of one dot! Yes, we have done it! Each line is transmitted as a row of dots, each representing a different primary color.

For reception the arrangement in Fig. 3 can be used, except that the three camera tubes are alternately connected to the one receiver, through an electronic switch similar to that in the camera unit, and synchronised with same.

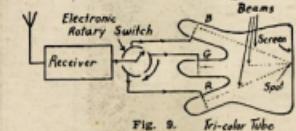


Fig. 9.

In place of the three tubes, however, we can use the special tri-color tube, illustrated in Fig. 9. This tube has three electron guns, and a screen with special phosphor coating, which can glow in either red, green, or blue, depending upon the electron frequency with which it is struck. Gun *S* is placed so that whenever its beam strikes the screen, it will produce a spot of blue fluorescence. Likewise, guns *G* and *R* are placed so that their beams will also produce spots of green and red, respectively.

The three beams scan the screen concurrently, so that at any instant, all beams are directed at the same point. Only one, then, however, is active. In other words, the two beams are blanked, so that at any instant, only the one connected to the receiver will give its beam sufficient intensity to produce any visible fluorescence. Scanning is therefore scanned by a single light, whose color is "painted" on the screen, so that each line of the picture is "painted" as a row of dots, of different colors. In a white line, for instance, the dots would run in the order: green-red-blue, green-red-blue, etc., each dot so small, that at normal viewing distance, they would appear to merge into the resultant white.

This method is therefore called the "dot sequential" system. In actual practice, the three-camera arrangement in Fig. 8 is replaced by the apparatus in Fig. 10, which was three camera tubes, but only one optical system. Color filtering is performed by three special lenses, which are set over the three cameras, and allowing all other colors to shine through it. They are therefore called "color selective" mirrors. This system is "compatible," i.e. its pictures can be received in black and white on existing sets, without modification. Furthermore, this system lends itself to a unique modi-

fication. Readers familiar with color printing will know that a color picture is printed in four stages, viz.: three primary colors and a fourth in black and grey. This fourth "impression" serves two purposes. Firstly, it brings out the picture detail more clearly, and secondly, it covers up minor faults in color registration (Fig. 5).

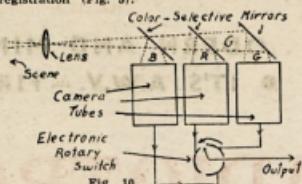


Fig. 10.

In effect, it outlines every object in black ink, and it achieves this by simply reproducing all the finer details in black and grey, leaving only the larger areas in color.

Now, in this color television system, the same effect is achieved electronically. Remember, the finest picture details will produce the highest video frequencies. Looking back at Fig. 8, we must see what the filters are for. The three filters, connected to each camera, blocks all frequencies above about 2 Mc., so that only the lower video frequencies reach the switch. The remainder are "collected" by the high-pass filter, mixed, and inserted in the signal ahead of the switch, and will therefore be continuously transmitted, irrespective of which camera is on the air.

In the receiver, therefore, these higher video frequencies are applied to all electron guns, irrespective of the colors reproduced. Consider the effect. Each negative half cycle (above 2 Mc.) will cut off all three electron beams, so that the reproducing spot (i.e. the spot that changes color!) will remain in the same spot. Each positive half cycle, on the other hand, will release the three primary colors, in the correct proportions to produce white, or grey. The net result is that all details less than about 1/2 in. in width are reproduced in black and grey, and only the larger ones in color. Since there are over 400 dots per line, this is only a small percentage.

This principle applies equally to the dot sequential system, since the other systems make no distinction between the dots, along each line. These dots have further significance, which is worth mentioning. They are a measure of pictorial detail, or "resolution," as it is termed. The more dots per picture, the clearer will be the background ("close-ups" not being appreciably different).

For comparison, 35 mm. theatre film uses about one million dots per frame; 16 mm. home-movie film uses 250,000; while 8 mm. home-movie film uses only 50,000.

And television? Let us first explain. Each dot represents half a cycle of video current so that the number of dots per frame is determined by the bandwidth of the signal, or that although the height of each dot is fixed (equals thickness of scanning line!), the length will depend upon the highest video frequency the system can handle. Each dot therefore, the system can handle, is therefore, larger than square, rather than square. (Read the definition again.)

American television therefore achieves resolution of about 200,000 dots per frame, in monochrome. In the field sequential color system, this is reduced to about 165,000. In the line sequential system, it's even less, since with this, whereas the dot sequential system achieves the same resolution as monochrome, viz. 200,000. Australian television should have greater resolution than its American counterpart, since we have a wider field of view, which allowed a greater bandwidth, so the number of elements per line can be increased proportionally.

Of all color systems, the dot sequential seems the most promising but, has its drawbacks. Firstly, with camera and receiver, there are three separate scanning beams, introducing difficulties in both color registration (Fig. 5), and color balance. In white, there can be tinting, the slightest misbalance can ruin the picture. Furthermore, the tri-color tube used in this system is extremely expensive to manufacture, nor does it lend itself to mass-production.

The field sequential system, on the other hand, has only one scanned surface in both camera and receiver, nor does it rely upon colored phosphors for color reproduction, but purely upon optical filters, which, being an older technology, have been around longer. The highest standard of development, color registration, balance, and fidelity, are therefore achieved automatically, and with much cheaper apparatus than other systems. It was mainly for these reasons that the Federal Communications Commission (U.S.A.) approved of the field

sequential system back in 1950, in preference to the other methods.

To realise these advantages, however, the receivers must use mechanical color control (although adaptable to electronic methods). This, combined with the high cost, tends to eliminate moving parts. In any case, this system is incompatible, inevitably using non-standard line and field frequencies so that its adoption would make all existing receivers obsolete.

The line sequential system suffers inherent line crawl, interline flicker, and reduced apparent vertical resolution, and seems incapable of much improvement.

It is the problems imposed by color, one might well ask, whether color television is really necessary. Unfortunately, the answer is "yes," for two reasons.

Firstly, for educational purposes. Chemistry students, for example, can learn little by watching experiments, or demonstrations by television, unless they can also see the color changes in chemical reactions. To medical students, color is equally important. In terms of a surgeon's need, and similar arguments, can be applied to almost every branch of science.

The second reason is less apparent, but equally important, and best understood by comparing television with a newspaper. In the latter case, the film, before screening, can be examined, and modified. Scenes of no interest can be cut out; those too long can be cut shorter, and the like. In television, the images can be arranged in whatever sequence will prove the most entertaining, and pieced together, to be further enhanced by a rehearsed commentary.

Now in television, where the programme must go direct from scene to screen, this "second choice" does not exist. In any unrehearsed type of programme, it often becomes very difficult to hold the attention of the audience. Long periods may elapse before anything interesting happens, yet cameras must remain on the scene. The answer is to make the programme materialised. There is ample motive, therefore, for scientific and perfect color television, however, to make this material.

During a cricket match, for instance, color would allow the audience, during lulls between runs, to see the surroundings of the oval, to see nothing or dress fashion, to interest the spectators. In general, color would maintain the interest of the audience, wherever programme material failed. There is ample motive, therefore, for scientific and perfect color television, however, to make this material.

It is encouraging to compare color television with talking pictures, which were first screened as early as 1912, but not perfected until 1926, and the first attempt was so futile, that literally, it brought their success. Color television is going through this same phase, and some day it will surely reach the same standard and be just as common as talking pictures.

In October, 1951, America suspended all work on color television, to conserve materials for defence needs. Meanwhile, it is quite probable that electronic research in other fields will provide the tools to perfect a color system far superior to those available.

Although attention has been concentrated upon sequential systems, there is still hope for simultaneous systems, which would overcome most flicker problems. They were originally proposed as one of the three possible systems required, but methods of condensing this bandwidth, without sacrificing picture quality, are still being sought. For instance, some scientists claim that in the wide band covered by a video signal, there is a lot of idle frequency unused, and are investigating the possibility of using these, to carry the extra detail required for color. Nor has Britain been asleep, during all this research work, across the water. She has done some very important color experiments.

Well fellows, that is the story of television. We hope you have found these articles interesting, and that they help you to prevent you when television comes to Australia, where they will have admirably fulfilled their purpose. Meanwhile, try and keep up to date with the latest developments in television (described in most radio and television magazines). Your query service will still continue to keep those answers rolling in. All queries are answered directly, by mail, and any that may interest fellow readers are answered in the magazine, the copy being submitted to this magazine, to be published anonymously, when space permits.

Queries need not be confined to the subject matter of these articles. Already many interesting queries have been received from readers, concerning aspects of television of which they had read in other magazines, but which we had purposely excluded from these articles for simplicity. We strongly encourage readers to submit queries of this type, since they are a measure of your interest in the subject, and we are delighted to answer them.

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 2APV—A. H. May, Station: 35 Blues Point Rd., McMahoens Point, Sydney; Postal: 33 Middle St., McMahoens Point.
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WAS IT YOU?

An Open Letter to a Ham

Dear OM,

Yesterday afternoon I heard you on ——. I know it was you for I've known you for years and I recognised the voice. You put your carrier on and off several times during twenty minutes, you counted, you said "hullo test," you whistled, you muttered something to

someone else in the shack, but not once did you give your call sign. Even assuming that in that you were not committing a breach, what have you against your call sign? Don't you like the sound of it unless from a DX station? Doesn't it make a good "test" pattern on your c.r.o.?

Do as much of your testing as you can on a dummy, OM, and when you must test on the air, give your call. You may not have meant it that way, but what you did yesterday afternoon sounded like deliberate flouting of the "regs," coupled with a deliberate attempt to fool the monitoring station. Don't do it, OM! Whether you mean it that way or not, it's a pretty poor show. There's no room on the Ham bands for the anonymous signal.

—73, VK6WZ.

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NEW SOUTH WALES

Activity generally on the v.h.f. bands has been mainly confined to the 144 Mc. band. A direction finding field day was held and won by 2AAU under the guidance and control of 2OK.

The annual election of officers took place with the following results: 2ANF, Chairman of Group and Country Liaison Officer; 2AOA, Vice-Chairman; 2AJZ, Secretary; 2ALZ, Technical Committee; 2AJZ, Secretary; 2HL, Field Day Organiser; 2OA, Contest Organiser; 2MQ, Publicity Officer; 2HL, 2OA and 2MQ, also constitute the Management Committee; 2WJ, 580 Mc. Co-ordinator.

The chairman, 2ANF, has just spent four weeks in Forbes during which period he has calculated a little more enthusiasm for the v.h.f.'s among the country towns. During his trip he visited 2ADT, 2ALZ, 2AOA, 2ATD, 2ANF, 2NS, 2APP and 2IL, also met 2GU, 2AMR and 2AEL. It was made quite evident that the activity and enthusiasm is in the Western and South-Western parts of N.S.W. quite high and with the state of building going on, some very reliable inter-country contacts are assured.

50 Mc.: Activity somewhat lower than usual with 2ADT, 2RU, 2VW, 2NP and 2HE among the most consistent.

144 Mc.: Activity has been confined to this band, with some outstanding contacts between 2WH, at Forbes, and 2ANF, 2ATO, 2AJZ, and 2ABL, all of Sydney. 2ANN, also of Forbes, established his first contact with 2ANF of Sydney. 2NS and 2WJ are having more contacts in Sydney during the evenings. 2NS is building a new final and cascade converter, 2GU of Gosford is now on 144 Mc. and puts a good signal. 2WH, 2VW, 2AJZ, 2DF, 2ABZ and 2WJ most active on this band with 2VW trying a new many-stacked co-axial array.

At the last v.h.f. Group meeting it was proposed to conduct a Statewide Field Day weekend, 18th-19th June, Day 1 October, and a competition with the Gladysville Radio Club with all Sydney stations and country stations out on the major mountain tops. In this respect, a group headed by 2HL with 2NP and Cec Cronin in the party went to Barrington Tops, many miles

north of Sydney and succeeded in making contacts with Sydney under the most trying conditions.

VICTORIAN V.H.F. GROUP NOTES

Results of the Field Day Contest are as follows: Portable Stations Section: 1st, 3GM, 238 points; 2nd, 3ACH, 214 pts.; 3rd, 3PO, 186 pts.; 4th, 3JO, 108 pts.; 5th, 3AJI, 78 pts.; 6th, 3ABA, 69 pts.; 7th, 3ADU, 28 pts. Home Stations Section: 1st, 3GM, 45 pts.; 2nd, 3ADU, 29 pts.; 3rd, 3AJK, 5 pts.

3GM receives a 2E26 donated to the Group by 3XA as the prize for the portable section. Mr. SABA receives an order for the value of £25.00 for a 2E26. In the former, only ten logs were sent in, whereas more than three times that number of stations participated and it was expected that many more logs would have been received. It appears obvious that the majority of stations have no interest in Field Day Contests and it is unlikely that any more will be arranged.

The attention of the Group has been directed towards arranging its exhibit for the forthcoming Exhibition. A small committee comprising 3ABA, 3AJK, 3ALZ, 3AHD, and 3JO has been formed to handle all the necessary arrangements. This committee has met and some plans formulated. The exhibits are already well made and a need exists for some equipment for display and some assistants to man the stand during the Exhibition. All offers of help would be greatly appreciated and should be directed towards the committee.

Equipment promised so far includes a 100-Watt Tx for both 144 and 50 Mc. and a crystal controlled Rx for 144 Mc. A turnstile antenna for each band is being made and enough of an array to be effective. A 2E26 or 2E30 and 60 Mc. converter or receiver is needed for the complete working model as well as various other pieces of equipment for display purposes.

Ray 3RJ had an interesting contact on 20 mx recently with a Russ DX 2000 of some kind, passed on the following note: Russ expects to be returning to Melbourne about next August when he no doubt will resume his old call of 3XK. His initial contacts from Papua with each State on 50 Mc. during the last DX season were VK3 4BT, SUI, 2WH, 5MK and VLZ. Unfortunately

no luck with VK6. The North Eastern Zone certainly led the field for Victoria, as the first two VK3s contacted were SUI (twice) then closely followed by 3APF. We hope that Russ may see his way clear to come along one evening and tell us some of his VK3 experiences.

WESTERN AUSTRALIA

50 Mc.: Only ones active are 6HK, 6GB, 6DW, 6FC, 6BO, and 6RK. 6GS is threatening to come back on the band. 6FC is a very nice arr. on 50 Mc. but has trouble with noise which seems to be coming from the power transformer at the end of the h.v. line from Marrogin. 6HK's new 834 final nearly ready to ready.

144 Mc.: 6AG, 6OK, 6WT have been seen on Sunday evenings. I believe that they have altered their time to 8 p.m. Also believe I heard 6JS. 6DW has put in a new tank circuit and has silver plated same. 6GB is striking now, better for this band. A couple of the new QPCG6 40s have found their way into some shacks. One found its way into 6BO's but was back again with loving care! Still it was good to have seen one. A new linear in 6HK's shack would make one feel comfortable during the next few months. Home comforts indeed, a lined shack and a pair of 834 radiators!

50 Mc. W.A.S.

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1839 LOWER MALVERN ROAD, GLEN IRIS, VIC. Phone: UL 5510.

DX NOTES BY VK4QL*

This month, my own time on the bands being infrequent and having some leave in the Mackay area, most of the material comes from the regular contributors, some of them apparently being inactive or dropping out. I would like to encourage let me have your material by the 25th of the month. All sources confirm that the bands are very flat and not much DX has been worked. The main interest to DXers has been the 1000000 mark. It is reported that DX to all continents is in doubt at the present time, though some have heard and worked the odd European, but a DX told me that this band had not been worked by any DXers. I would like to have these checked out with official approval. The hand survey, with stations worked *, and times in G.M.T. (next time):—

3.5 Me.: 4XJ had a listen on this band (28 Mcs. must be beat at this?) and heard a few KXHAF, KXHAF, ZERK, 2M8, 3M8 still able to do anything better than VK and ZL on this band. Why not make a skip with K6CQY Ray? He uses the band.

7 Me.: The notable absence has been Radio Pakistan which leaves quite a gap in the list of the stations for the impossible DX. My observations have shown the band useless for VK or DX contact. 2AMB has been giving the band some attention and was rewarded with HH2EFL and VY4AF. 3CP did not have a very successful month, having plenty of VY4AF, VY4HJP, VY4AF, KPCMK, GJ1CNC, MDG10, VY4HJP, VY4AF, KPCMK, GJ1CNC, ZE1AP, VY4AF, ZA2EFA, FT4GX, ZERK,

* Flt./Lt. F. T. Hine, No. 10 (G.R.) Squadron, R.A.A.F., Townsville, Queensland.

DX C.C. LISTING

PHONE

Call	No.	Ctr.	Call	No.	Ctr.
VK3EE	10	163	VK4WF	16	121
VK4HK	12	160	VK4JP	8	114
VK5JJ	1	155	VK3AWW	14	112
VK3BZ	3	154	VK4DO	20	109
VK5BU	1	153	VK3AW	24	104
VK5EJ	12	152	VK3SMS	13	102
VK5K	1	151	VK4TD	13	102
VK5KWK	14	150	VK2AD	15	102
VK3LN	11	141	VK2AHA	15	102
VK4FJ	21	135	VK6EP	19	103
VK5DD	6	126	VK4RT	22	101
VK3JE	7	123	VK3IG	5	100
VK4WJ	17	122	VK3GG	16	100

C.W.		C.W.				
Call	No. Ctr.	Call	No. Ctr.			
VK3BZ	6	200	VK4RFB	..	11	128
VK3FJ	15	201	VK4VE	..	27	123
VK3FH	15	202	VK3YD	..	3	123
VK4EL	9	157	VK3EK	..	25	118
VK2EO	1	158	VK3JJI	..	38	117
VK3CN	1	151	VK3PL	..	12	116
VK85A	1	150	VK3UJM	..	24	114
VK4FJ	19	159	VK3V	..	7	113
VK4FJ	29	150	VK4DA	..	17	112
VK3FJW	4	143	VKT1LZ	..	13	107
VK2QL	5	142	VK4RC	..	30	106
VK5HU	16	141	VK3YL*	..	37	105
VK3SR	10	140	VK3H	..	37	103
VK5PH	10	139	VK3HHT	..	14	101
VK5BQ	31	134	VK3APA	..	10	101
VK5BQ	33	133	VK3NC	..	32	101
VK3GW	16	132	VK3OA	..	22	100
VK4DQ	20	128	VKT1K	..	35	100
VK4DQ	20	127	VK1AEZ	..	10	100

110

Call	No.	Ctr.	Call	No.	Ctr.
VK3BZ	4	213	VK3AWW	45	115
VK4HUR	7	206	VK3JJA	43	114
VK5ERU	18	186	VK2ADT	14	113
VK5JKE	12	180	VK4WR	55	113
VK5JL	13	179	VK3WV	56	113
VK5H3G	17	171	VK3MM	49	111
VK2IDI	21	170	VK4RC	21	110
VK3KX	1	167	VK3ZB	34	110
VK4EL	10	167	VK3ZCZ	25	109
VK5K	11	167	VK3AW	106	108
VK5KWK	12	167	VK3AWN	36	105
VK4D0	15	157	VK3VNN	18	104
VK3LN	29	144	VK4UL	27	104
VK5FL	5	143	VK3VW	50	104
VK3OP	19	139	VK3PHZ	17	103
VK4SD	22	136	VK7KHC	30	103
VK2ADE	28	133	VK2TII	37	102
VK4WV	10	132	VK3VZ	12	102
VK2AHM	40	128	VK5DX	42	103
VK2NS	16	123	VK7TRK	31	102
VK5JHT	41	123	VK4TY	35	102
VK4L	19	123	VK3G9W	48	102
VK7LZ	22	116	VK3VW	5	100
VK3V9Y	45	116	VK2ACX	39	100

ACCURATE FREQUENCY TRANSMISSION RESULTS

New measuring equipment at the Checking Centre enables the frequencies to be given at the beginning and end of the one-minute key-down period. In the following lists the first correction given is the beginning of the period. L = Cycles low; H = Cycles high.

2 = Cycles low, 11 = Cycles high
3500 Kg 5 L 8 L

3500 Kc.	5 L.	8 L.
3530 Kc.	50 L.	60 L.
3560 Kc.	16 L.	20 L.
3590 Kc.	16 L.	22 L.
3620 Kc.	16 H.	12 H.
3650 Kc.	24 H.	24 L.
3680 Kc.	45 L.	52 L.
3710 Kc.	8 L.	2 L.
3740 Kc.	56 L.	68 L.
3770 Kc.	5 L.	1 H.
3800 Kc.	38 L.	40 L.

Low Drift Crystals FOR AMATEUR BANDS

ACCURACY 0.02% OF
STATED FREQUENCY

3.5 Mc. and 7 Mc.

Unmounted £2 0 0
Mounted £2 10 0

**12.5 and 14 Mc. Fundamental
Crystals, "Low Drift,"
Mounted only, £5.**

Spot Frequency Crystals
Prices on Application.

Regrinds £1 0 0

THESE PRICES DO NOT
INCLUDE SALES TAX

MAXWELL HOWDEN
15 CLAREMONT CRES.,
CANTERBURY, E.7,
VICTORIA

Operating Awards and Diplomas

COMPILED BY RAY JONES, VK3RJ,
FEDERAL QSL MANAGER

The following list, whilst not complete, may prove of assistance to members. Australian and New Zealand Awards are not included herein.

Great Britain, R.E.R.T.A.: Proof of contact with 25 of British Dominion Call Areas and 15 British Colonial Call Areas. Apply R.S.G.B. Charge: 2/6 stg.

Great Britain, H.B.E.: Proof of hearing above areas. Apply R.S.G.B. Charge: 2/6 stg.

Great Britain, W.B.E.: Proof of contact with one Empire station in each of the five Continents. (North and South America are counted as one.) Apply W.I.A. Charge: 2/6 stg.

Great Britain, Empire DX Certificate: Proof of contact with all Empire Countries on 14 Mc. A separate Certificate issued for contacts with 30 Empire Countries on all bands other than 14 Mc. Apply R.S.G.B. Charge: 2/6 stg.

U.S.A. (A.R.U.), W.A.C.: Proof of contact with one station in each of the six Continents. Apply W.I.A. Charge: Free.

U.S.A., W.A.S.: Proof of contact with one station in each of the 48 States of U.S.A. Apply A.R.R.L. Charge: Free.

U.S.A., DX C.C.: Proof of contact with 100 Countries since 15th November, 1945. Apply A.R.R.L. Charge: Free.

Germany, W.A.P. (Worked All Europe): Details on request to this Bureau. Too lengthy to publish in full. Apply D.A.R.C. Charge: 10 Reply Coupons.

Spain, Espana Diplomas: 125 contacts with EA stations including three with each of the nine districts. Since 1/1/52. Apply U.R.E. Madrid. Charge: Free.

Italy, W.I.P. (Worked All Italian Provinces): Contact with 60 of the 93 Italian Provinces. List held at this Bureau. Since 1/1/49. Apply R.C.A., Ravenna. Charge: Free.

Cuba, Worked Cuba Award: Contact with 7 of the 8 radio districts of Cuba. List held here. Apply W.I.A. Charge: Free.

Brazil, W.A.A. (Worked All America): Contact with 45 countries in the Americas. List held here. Apply L.A.B.R.E., Rio de Janeiro. Charge: Return Postage.

Denmark, OZ.C.C.A. (OZ Cross Country Award): Contact with 15 of the 25 radio districts in Denmark on points basis. Details held here. Apply E.D.R., Aalborg. Charge: Five International Coupons.

France, D.U.P.: Four sections. Contacts with stations of French Union: (1) 3 Continents, 5 Countries; (2) 5 Continents, 12 Countries; (3) 5 Continents, 10 Countries; (4) 6 Continents, 16 Countries. Each to include Europe as one of Continents. Section may be obtained progressively. List of Countries held here. Apply W.I.A. Charge: Free except 4th section which is a medal; fee 10 francs.

France, D.P.F.: Contacts since 1/1/51 with 16 of the 17 Provinces of France. List held here. Apply R.E.F. Charge: Return Postage.

Chile, W.A.C.: Contact with each of the seven radio districts of Chile. Apply R.C.C., Santiago. Charge: Free.

Sweden, No Title: Post-war contact with each of the seven radio districts of Sweden. Apply S.S.A., Stockholm. Charge: Ten Reply Coupons.

British East Africa, W.E.A.: Contact with one VQ3, one VQ3, and three VQ4 stations in

any year (1st Jan. to 31st Dec.), gives entitlement to an Annual Certificate. Five of these Annual Certificates plus one VQ1 contact makes the final award (W.E.A.). Claimed to be the most difficult award in existence. Apply R.S.E.A., Nairobi. Charge: 5/- each Annual Certificate, and 5/- for W.E.A.

Canal Zone, No Title: Contact with ten different KZ stations. Bigger and better Certificate for contact with 25 different KZ stations. Apply C.Z.R.A. Charge: Free.

U.S.A., W.A.Z.: Contact with each of the 49 radio zones of the world. Apply "CQ." Charge: Free.

Applicants for any of the above awards are requested to ensure that all conditions have

been fulfilled before application is made and that the prescribed fee is enclosed with the application. Registration of all verifications is recommended. It is also essential that the application be made direct to the authority listed for each award.

In the past many applicants have taken the easy and oft-times cheap way out by forwarding applications for overseas certificates to the W.I.A. While full information on any award will be given to any applicant, the W.I.A. will not be able to apply for any award other than those listed above as W.I.A. cannot be undertaken. Your officials who gratuitously give their time and energy to Institute affairs, have sufficient leisure to do their work. In addition, all mis-routed applications will, after publication of this list, be returned to the senders.

VK5WI STAND AT EXHIBITION

TECHNICAL DESCRIPTION

Bands of Operation: 7, 14, 50, and 288 Mc. 7 and 14 Mc. Transmitter: RF—6V6 xtal osc., 807 buffer (doubler on 14 Mc.), and 813 final. Audio—crystal mike to 6S37 and 635 speech amplifier, 6V6 driver, pair 813s in Class B modulators. Plate and screen modulating 813 final amplifier.

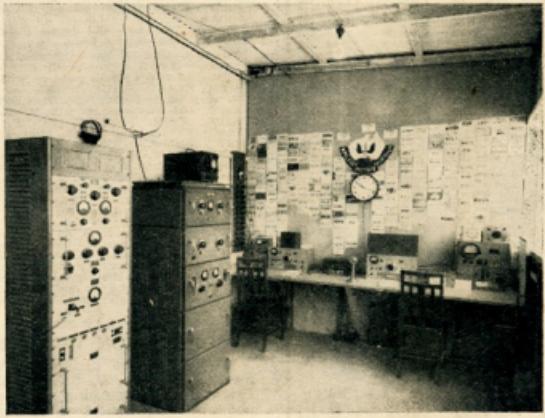
This transmitter was a converted Philips' broadcast transmitter and was converted by members of the Exhibition Committee. It received a very favorable response of equipment and there was much favourable comment from members of the public. The transmitter was capable of running inputs up to 300 watts, but to comply with Regulations, the input was reduced to 100 watts and remained at this point for the duration of the exhibition.

Receiver: ART for both 7 and 14 Mc.

Antennae: 7 Mc.—The popular 68 ft. "all band" antenna, fed 23 ft. from one end with 300 ohm ribbon. 14 Mc.—Two element close-

by scores of motors driving the many working exhibits and extensive use was made of official 50 Mc. link stations in the suburbs. Stations were in official link with VK5KHD, VK5KHD, and VK5LW where signals were received on 7 or 14 Mc. and beamed to the Exhibition on 50 Mc. It was found that these strong signals completely "killed" the noise and reception was good as could be expected at an average suburban location. The 288 Mc. link was used on two occasions where there had been a temporary breakdown on 50 Mc., with similar results.

Public Address System: A small public address system was installed with a loudspeaker outside the building. The mixing circuits (seen between the two ARTs in the photograph) allowed operators to relay to the public both the incoming and outgoing signals in order that the public could hear the conversations. There was also a third microphone enabling operators to make announcements to the public.



spaced rotary beam mounted on a 30 ft. steel tower. This was also fed with 200 ohm ribbon to a suitable quarter wave matching section.

50 Mc. Band: Transmitter, R.F.—VT52 xtal osc., 807 doubler, 807 double, 834 doubler, pair p.p. 834s final amplifier. Audio—crystal mike to 6S37, 635, pair 633s speech amplifier, pair 6L6s sub-modulator driving pair TZ40s in Class B modulators. Plate and screen modulating the pair of 834s. Power input, 100 watts. Receiver: Crystal controlled converter feeding into another ART receiver (shown in the photograph at the far left of the operating panel). Antenna: Four element rotary beam mounted on a 30 ft. 2 element beam on the 30 ft. steel tower.

38 Mc.: Receiver only, consisting of 6J8 super regen detector and 6J3-6V6 amplifier. Installed for intercom purposes only and for use in case of emergency. The antenna was a 3 x 3 beam.

Link Stations: In practice, it was found that very few signals, other than powerful locals, could be received direct due to noise generated

on the 7/14 Mc. transmitter. Frequency Meter. Seen on extreme right of operating table. Panoramascope—Seen on top of the Frequency Meter and beneath the 288 Mc. receiver.

Duration of Exhibition: The exhibition opened on 7th March, 1952, running for eight weeks, closing on 3rd May, 1952. During that period, operators made 570 contacts, a number of stations being worked several times. The following analysis (excluding VK5) may be of interest to readers. The figure in brackets indicates the number of individual stations contacted in each District. VK5 (1), VK4 (1), VK3 (2), VK2 (1), VK1 (1), VK6 (1), VK7 (10), VK8 (2), VK9 (1), VK10 (1), VK11 (1), VK12 (1), VK13 (1), VK14 (1), VK15 (1), VK16 (1), VK17 (1), VK18 (1), VK19 (1), VK20 (1), VK21 (1), VK22 (1), VK23 (1), VK24 (1), VK25 (1), VK26 (1), VK27 (1), VK28 (1), VK29 (1), VK30 (1), VK31 (1), VK32 (1), VK33 (1), VK34 (1), VK35 (1), VK36 (1), VK37 (1), VK38 (1), VK39 (1), VK40 (1), VK41 (1), VK42 (1), VK43 (1), VK44 (1), VK45 (1), VK46 (1), VK47 (1), VK48 (1), VK49 (1), VK50 (1), VK51 (1), VK52 (1), VK53 (1), VK54 (1), VK55 (1), VK56 (1), VK57 (1), VK58 (1), VK59 (1), VK60 (1), VK61 (1), VK62 (1), VK63 (1), VK64 (1), VK65 (1), VK66 (1), VK67 (1), VK68 (1), VK69 (1), VK70 (1), VK71 (1), VK72 (1), VK73 (1), VK74 (1), VK75 (1), VK76 (1), VK77 (1), VK78 (1), VK79 (1), VK80 (1), VK81 (1), VK82 (1), VK83 (1), VK84 (1), VK85 (1), VK86 (1), VK87 (1), VK88 (1), VK89 (1), VK90 (1), VK91 (1), VK92 (1), VK93 (1), VK94 (1), VK95 (1), VK96 (1), VK97 (1), VK98 (1), VK99 (1), VK100 (1), VK101 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FEDERAL, QSL, and



DIVISIONAL NOTES

Federal President: G. GLOVER (VK5AG); Federal Secretary: G. M. HULL (VK5ZS); Box 2611W, G.P.O., Melbourne.

FEDERAL

IT'S FREE!

By courtesy of Mr. Philip S. Rand, W1DBM, of the Laboratory of Advanced Research of Remington Rand Inc., South Norwalk, Conn., U.S.A., a quantity of booklets on Television Interference have been shipped to the Wireless Institute of Australia on application for free distribution to members.

The booklet consists of over 100 pages of the most comprehensive articles on t.v., and its causes and cures that had never been seen in this country under one cover. Mr. Rand has excelled himself as editor in producing a complete up-to-the-minute booklet to assist the amateur and engineer to avoid the pitfalls of t.v. and how to go about curing the trouble when it exists.

Although Amateurs in Australia are not confronted with these problems as yet, the Amateur with a flight will provide NOW for the elimination of television interference under his transmitter is concerned because as sure as the sun rises in the east and sets in the west, the Australian Amateur will, in the not too far distant future, have to contend with the t.v. problems that the American Amateurs are at present causing great concern to the British Amateur.

If you are an Amateur member of the W.L.A. and interested in solving these problems before they are out and "mug you, write in to the Federal Secretary, W.L.A., Box 2611W, G.P.O., Melbourne, enclosing a 4d. stamp to cover postage and a copy will be reserved for you. Applications will be held in strict sequence as received and numbered in strict sequence as received and copies will be posted out in this order until supplies are exhausted, so be early.

EMERGENCY NETWORKS IN CIVIL DEFENCE

If you have been following the activities of Federal Council and Federal Executive over

the past year or more, you will know that your Divisional Council has a mandate to forward to F.E. a chart showing the organisation set-up of emergency communications in your Division. This information is required for the Minister for Civil Defence so that he will know where the Amateur's services can be drafted into the civil defence requirements.

You have already been told in these columns of the interest displayed by the Minister in the potentialities of the Amateur in developing any civil defence scheme, and his express desire that he be given a document outlining the complete Amateur system as at present in existence in the Commonwealth of Australia.

Please remember that this document if you—the man with the equipment, the inclination for emergency communications, and the desire to serve your country during times of emergency—do not advise your Division regarding what equipment you have on hand, and in which you could operate the network in which you could participate as an active operator, and details of future equipment you intend to construct that could be used for emergency communications services in aid of a man's notice.

Admittedly, defence projects have been somewhat curtailed, but this does not forbid the Institute from continuing with its present emergency communications network and expanding them to encompass the entire country twenty-four hours a day if necessary.

This is the greatest opportunity the Australian Amateur has had offered to him to show the world just exactly what an Amateur communications network can do when called upon to function. But if you don't initiate the greater envisaged scheme by taking an active interest in developing suitable equipment and having it ready for immediate service, you will find that other emergency communications systems will be doing the job rightfully belonging to you.

Your Federal Council, you know, in fact everybody knows, that you as an Amateur, will be ready to offer your services in any

capacity. But that is not good enough! Besides your services you must be ready to offer your equipment too!

Remember, the Amateur's greatest chance to maintain a wartime Civil Defence Network in conjunction with other Services lies in the field of radio.

Already some Divisions have recognized this fact and are encouraging Amateurs all over the country to interest themselves in v.h.f. activities; asking them to get on the air on the high frequencies, to obtain radio days in attempts to pass messages over great distances by relay stations at strategic points throughout the States. Some of these networks are functioning NOW and growing in strength every day, and more are more are wanted, especially in the country areas.

The future of emergency networks lies in your own hands; the privilege of continuing to conduct your own local hobby, which is a national need is tightly linked with it. Because you may say you are away out in the bush and cannot be heard on v.h.f. is fast becoming a myth. You—the country man—are the key men in a nationwide network.

Do today what you will criticise others for having lost tomorrow!

FEDERAL QSL BUREAU

RAY JONES, VK5RJ, MANAGER

Johnnie Jones, VK5RJ, who has been in England since July, 1951, attending R.A.F. Staff College, has been back in VK in July. Shortly after his return it is likely we will hear him under a VK3 call sign.

A Japanese correspondent states that by the end of the current year Japanese stations will be back on the air.

The Danish Society E.D.R., which is presently conducting its 25th year Jubilee celebrations advised visitors that the grand finale of the festivities will be held on 23rd August at "Haandvaerkerforeningen" in Copenhagen. Vis-

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have commenced work with the soldering iron in an effort to remodel existing gear or to make concrete some of the brain-storms of the past months. Ken's latest creation is a v.o.f. for the 2ANU shack; it runs entirely from 32 volts, both for the heaters and plates. Ken has used a pair of 2SL5 tubes as amplifiers and doubled in this unit following the usual e.c.c.o. and isolator. Geoff 2VU returned from holidays, busy rebuilding 50 Mc. rig into a

more compact unit; heard on 80 mx. 2ADT spent a very enjoyable week at Urungs and while there caught a number of famous fish, has added a single 807 to the v.f.e. which provides a 5w. signal on 80 mx without b.c.i. (he hopes). 2KF trying various arrangements on 144 m. and has had some success. 2EZ has been plugging away on 10 m. each week. Major 2RU finally got the two mx beam up, moving them down on two. 2KR active on 40 and 2, while 2KCI has been on the air band. 2EJ has the Gec box himself I take it. 2EH is plugging away on 80 c.w., but threatens to build a mod. Nothing is known of the activities if any, of other stations in the zone. There are a number that I feel bashful about. If you are doing anything pass the word along or you might feel neglected.

WESTERN ZONE

The visit of John 2ANF has been a great help to v.h.f. country Hams. John's demonstrations of what a good Receiver can do, and how not to build v.h.f. gear have been invaluable. Towards the end of the month 2MQ, 2HLD and Cess Crawford paid a visit to the area. Cess arrived early in the year, but, though he looks as though regular contacts with Sydney will be possible on "two" as a number of Sydney stations report hearing Forbes stations. 2MQ, 2ANF and 2ATO have been heard in Forbes, and 2MQ and 2ANF have both been worked by 2W1N QSL cards. 2ANF has been heard on 2M by 2W1N, 2HLD and 2HLD each other on QSB at times, and that with 2ANF lasting half an hour with copy spots at both ends.

Dubbo Hams are working among themselves on 144 Mc. and 2ACT and 2AMR are looking for outside contacts. Radio 2ACU had bad luck with their beam, that wouldn't stay up, but has it fixed now, and ready to crack open further. Coonamble-Dubbo path or points further out. 2AWY briefly heard on 80 mx with a good sig. STRANGE how many ZLs, VK3s and how few VK3s are heard on 2.5 Mc. TWI broadcasts well received in the west and would like to see

them continued. Ron 2VR, ex-Broken Hill, now at Bathurst and hear whispers of v.h.f. activity. Jack 2OF broke a long silence and showed up briefly on 7 Mc. phone. Another rare one, 2BT. I hear Bill is going to put ~~Facebook~~ on the v.h.f. man sheet.

VICTORIA

NORTH-EASTERN ZONE

Sunny V. Well fellow s'rors, I am to be will
if I never see much rain again. I will be
satisfied; mud, rain, more mud. oh well at
least I had a good rest. Last I remember was
JIC working on 20 m. c.c. converter, ably
assisted by 3U1 JIC working a few Ws.
3U1 VENUS was the next one to be worked
3AL4 about to become the next zone corre-
spondent; Les has a new 6 mx beam up and
the results justify his labours. J1HZ dickerin
around with the rig, heard Murray say the more
controls to the rig on the next zone more
likely. J4PFH having a hard time getting into SAT
very silent these days. 3K3 heard on 30 m. wave,
sorry I had to run out Ken. Ex-zone member,
3DW, also a constant 80 man.

EASTERN ZONE

All quiet on the eastern front at the moment, judging by the lack of E.Z. sign on 80, except on Sunday nights, when the boys dust off the rigs and enter into the bull-ring! Have just returned from VK5 and with a short stop into VK4, a good time apart from the curse of it that rained all day but one! However, SWQ gave us a right royal welcome and we discovered that the west end of VK5 is not so bad! How's that, Peter? Returning home, we found that J. Pluvius has been on the job and once more, I am flood bound! It's a crux world.

SIZ has the 348 together again—says it works too. Peter says John is still busy with the crowd! 3QZ back from VK4—dept in a week. 3AFG reporting a new vehicle there—they say the farmers have all the dough, but I wonder? 3SG rather quiet these days, he is alleged to be interested in chickens! 3SS and junior still working on 6 mm gear. 3AGF on holidays in VK4. 3ABF on 80 occasionally. 3AFG still thinking of firing up the rig, 3MAF another quiet type. 3AD still regular 3000W, though greatly improved modulation. No word from 3ABP since his transfer to Melbourne. 3ADA still at Woomera, what about a

letter to him, chaps? Shouldn't have said that, but I'm a poor correspondent myself! Two of our Bairnsdale associates sat for the A.O.C.P. and I hear that they were OK on the theory but the dots and dashes trapped them. However, it looks like more QRM on 80 soon.

CENTRAL WESTERN ZONE

and set up on the 144 Mc. after testing the DX has decided to do the right thing and erect a ve beam so that the 100w. rig can get a real kick-off. 3HL has been working on the 144 Mc. and has reported that he reduced power from 1,000 to 200 watts (Aussie 250 watters please note!). JYW's Rx is coming along slowly, but is sadly hampered by a steady rain. 3HL has been working on the straight and narrow as last heard he was deep in conversation with 3DP on astro-compasses, and the fact that he was only 2-3 days away from the 144 Mc. on 114 Mc. 3RR is still v.h.f. happy at Horsham, last heard was gonding 3AGD into putting the 144 Mc. beam up again to contact Dunkeld.

GEELONG AMATEUR RADIO CLUB

The two meetings of the above club were well attended by members. Bob 3IC is conducting a Morse class which is coming on very well. Mr. J. Beckingham brought along a relay controlled two-stage xtal rig, including a modulator and power supply, built on the one chassis. The workmanship of this gear was a credit to Mr. Beckingham. The syllabus for the forthcoming 12 months was finalised and should be an interesting year for members.

QUEENSLAND

Poorly attended was the monthly meeting, held on the third Friday of May at the Institute of Engineers' Rooms, next to the Civic Theatre, Valley. This fact was noted and commented on by quite a few of the older members

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I can only do my best, and if a faith in our grand game of Ham Radio is any recommendation, then I come to you well recommended. There is one small point that I would like to clear up at this juncture, in fairness to myself, and that is the question of the appearance of being a definite call, but don't let that trick you when you see me disguised as the President of the leading Division of the W.L.A. The scribe for VK6 will now take his violin out, don out the violine inkwell, and put to paper a vitriolic sentence pertinent to Pansy the President.

WESTERN AUSTRALIA

At the May general meeting of the Division business dealt with included applications for membership from 6GB and 6TR, both of whom were welcomed to the fold; Jim again, and Tom for the first time. Resignations from 6XK, 6MK and 6LW were deferred on the motion of the President. At the June meeting, the President (6AG) gave a report on the May Council meeting and as other officers had nothing to report, next business to come up was that of calling for applications for the post of Traffic Manager. None were forthcoming. It was decided to advertise in the members' bulletin for aspirants. The same overwhelming response greeted the discussion on forming a Contest Committee, as a sub-committee of Council was to be formed to contact other members if thought necessary. Watch out boys, the press gang will be abroad again!

One of the evening's pleasant surprises was the presentation by the President to the brave medallists Jim won in the 1951 Jubilee Relay. Congrats, Jim! Further presentations included an Honorary Life Membership Certificate to Wally 6AC by the immediate past President 6VW. Wally certainly deserved his honour for his without doubt one of the few now-active Hams in VK6 who was in the game right back in the very early pre-broadcasting days and has been all along a staunch worker for the Institute. Wally's wife, after having air his grievances from time to time and hasn't sulked when the opposing forces have said their say, sometimes in emphatic terms. I'm sure I express the sentiments of all VK6s and others when I say "Well done, Wally". Wally, on that Life Membership and on your election as President." (As 5FS would say— "I'll get on!"). The remaining presentation also concerned 6AC who received from 6GB his son and his own, the Lambrick and Lang trophy, won by 6AG at the recent Field Day and picnic outing. Both presentations were applauded and Wally made suitable remarks.

Other business included the acceptance of radio clubs and societies into the W.L.A. and the rules governing same and also the opening of the 21 Mc. band. The former I don't intend to go into here, but the latter was decided to arose some acrimony among those who seemed to think that "someone" knew about the P.M.G.'s decision sooner than the editorial in "A.R." would indicate. Anyways, what are you going to do about it? I got the band open to those sections of it not occupied by commercial f.s.k. stations and it's not yielding much anyway. Perhaps someone's "harked" at not having sufficient advance information to "beat" the others. I don't know what I think like that! I have no information as I write this as to whether 3XU turned up at the June meeting—if he did, I'll bet he had a hot time answering questions. We are in a bit of a lot in VK6!

Main business of the evening was the report on Federal Convention by our Councillor, Ron 6KW. As well as giving a report on the agenda items, voting, etc., he also showed a short film of Convention personalities and some "stills" of the Xmas Party. Then followed 6GB's informal, but highly interesting talk on his recent trip to the U.K. I quote from 6GB's meeting minutes—"Portion of 6GB's discussion was recorded by courtesy of 6KW and will be reproduced if possible over 6WI after suitable censorship."

Besser on Doing— 6RO fishes, tell me—but the fish don't! 6HR's wench—sorry, Lou—winch works very nicely hauling his "ostrich special" up out of the ground and, as required, lowers it back again. 6GB's arrival in a small yacht, to sail alone—too room for a portable. Barry tells me what's Ham Radio coming to? 6BS tells me he's just had an antenna pole downed for the first time in 20 years for a—port. 6DI is doing a new building, including something likely to become known as "Bill's Old Oak Chest". It's a rig for c.w. only with a 211 in the p.a. and built (just now) on a base of one old breadboard lines. The "deck" is a family hollowed-out oak leaf out of Mum's extension dining table. Well, I've heard of some hostile Mums and XYLs. I've met some completely detached and apathetic c.w. but this must surely rank as an all-time high in indulgent womenfolk! How do you do it, Bill?

6VM having the beam galvanised, 6JW not heard often but busy trying to make a good Rx out of an SX34. 6MK bemoans the fact that there is little to work on any band and is still doing his best (my spies report) to put his beam up. 6LW is still doing his best, something 6TR had an inspection by the R.L. and is busy putting one or two points to rights. 6LM is doing the rounds of the country areas and finding them (I'm told) most lucrative as well as first-class country areas. 6WS, the country Hauss. 6WS recently lectured before the Radio Society. 6WS is still waiting for that prop. pitch motor but nevertheless manages an occasional contact with the reliable portable. 6TR is still working on his 6TR portable, but is cogitating about adding elements for 21 Mc. before setting it up. 6RW busy with a converter for "six" and planning portable rig. 6LW's "six" is a "six" where the new 634 finale is operating but c.w. only till the new mod. is completed.

6BO keeps popping up on most bands, mostly 21 and 21 Mc. Evidently things are on the up and up again, though he doesn't do much sleep and, I'm told,liking it. 6FW having completed his Bassendean home lost no time in getting on the air. Between new home chores, 6FW and two young ones are a busy bunch. 6MB works "Fen" on 21 with his antenna on the roof and says it's no trouble! 6KW and 6RU quite these days, except for an occasional (very occasional) appearance on Mc. Jim. 6LW is still doing his portable and allowed a few precious minutes of his time for me to drool over his latest car. Jim no doubt girding his loins to do battle again in the R.D. and I sincerely hope that the other top-scorers get better support this year. Jim. Last year's poor show must NOT be repeated.

6LW lived up to his record and was on 21 Mc. as soon as the clock and the calendar proclaimed 1st May. 6WL's made a feature of always being first in on any new band released and has been on 21 Mc. since 1st April. 6LW is 7 Mc. away from us for a couple of months then releasing it again—maybe I'd have a chance of a QSO with 6WL again after all these years! Apart from those already mentioned in despatched the following have been noted on 7 Mc. in recent weeks, some frequently, others just for one or two visits: 6EL, 6JC, 6GJ, 6MK, 6ML, 6EW, 6LT, 6LC, 6AR, 6JY, 6TY, 6TK, 6TY, 6TY.

And now, on close on a sad note. My copy of "A.R." is even later in arriving than I am in sending in these notes, so I don't know what 5FS has to say about me and will have to reply to any comments on the "A.R." issue. But I did appreciate his May comment, and only hope that I'm not kidding myself—perhaps the notice taken of this column in VK5 is hostile notice—good grief, I hadn't thought of that! See you next month—I hope.

TASMANIA

The June general meeting was held in the Photographic Society's Room on Thursday, 5th June, and was presided over, as usual, by Bob O'May. The meeting was opened with a short prayer and then the President, Mr. Alan, who considers that Hobart has been experiencing almost continuous rain for several days, plus temperatures lower than usual. The evening's main item of interest was a lecture on "X-Ray Equipment and Techniques" by Mr. Tom Allen. Illustrated per medium of film stills, this lecture proved highly interesting and was greatly appreciated by all present. Welcome visitors to the meeting were Bill Nicholls, associate member from N.S.W. Hunter Branch, and associate member Graham Nichols from our Northern Zone.

Our congratulations go to Doug Watkins, 7DZ, who enjoys the unique distinction of being the 10th Ham to work 7 in Tasmania. From what I hear, Doug is quite active already, and has no intention of letting any cob-webs gather on his final. A welcome also to new associate member, Don Simons, of Tasmania. Members that evening we saw 6XZ on our circuit, it won't be long before Don is contributing his share of r.f. to that already in circulation. Tarooma should be a good spot Doug, and I hope you'll be able to get the rig up to you. Further congratulations also to associate member, Roy Emmerton, who, having passed the A.O.C.P., now awaits a call sign. Believe also that associate Don Clifford has the code required to work 7 and is just round and down and tall up Don, and best of luck to you.

Members are reminded that since our financial year has been changed (1st March to end of February), subs due now are on a pro rata basis, for eight months ending 1st Feb, 1952. According to the latest information there has been no drastic change in reception conditions on the various bands, and the spell of cold, wet weather has done little to promote activity. In fact, it's quite common these days to hear someone say that he must vacate his shack soon before frost-bite prevents him from so doing.

There is also a lull on 2 mc at the moment, but this can be readily rectified if some of you chaps who are "nearly there," just make the final effort. So what about it fellows, it's a far less painful process going crackers on 144, than to live with them for DX on the other bands. I have no direct news on 6XU, but latest grape-vine is "that there bug" is biting again, and Alan may soon show up again in the 2 mc band. Pressure of business is unfortunately getting the last laugh, but Len just think of all those condensers you have. You have a weekly "switching on" ritual, and keep in touch at the same time. TDA is revamping his Rx preparatory to returning to the fold. Goss is still working on his 6XU, and has such a bellicose look, when all I said to him about 6XU, I am still awaiting gentle enlightenment on the subject.

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